

WHY DO IT? For safe and independent travel, persons with limited or no vision depend on environmental cues such as curbs, texture changes underfoot, ambient sounds, and physical elements that can be sensed by a cane.

The Americans with Disabilities Act (ADA) has established accessibility requirements through its Access Board for State and local government facilities. ADA Accessibility Guidelines (ADAAG) establish minimum requirements for the installation of *detectable warnings* on sidewalks, street crossings and curb ramps, hazardous vehicular ways, and transit platform edges. Detectable warnings are texturally unique and standardized features, intended to alert visually impaired pedestrians to the presence of hazards in the line of travel. The temporary suspension of this requirement expired in 2001. NHDOT had to begin specifying these products in its highway projects.



THE GOAL

U.S. Access Board research indicated that the truncated dome is the most effective system for providing a distinctive pattern detectable by cane and underfoot. The research

showed that grooves, striations, and exposed aggregate are not detectable because of similarities to other surface textures and defects.

These products were filling a new need and had no performance history with NHDOT. There were no independent test data for the quality and durability of these products. Many systems were competitively priced, but would they last?

WHAT WE DID

Late in 2002, NHDOT initiated a test program to document the durability of eight truncated dome systems under winter maintenance conditions of plowing and surface de-icing treatment. NHDOT



Bridge Maintenance Bureau coordinated with the product suppliers and constructed the test sections, assembled along the east side of Hazen Drive in Concord.

BENEFITS

New Hampshire is one of four states to take the lead in real-world evaluations of these products in an evolving niche industry. The work has provided NHDOT and New Hampshire municipalities with valuable information in selecting detectable warning panels. When you consider the number of sidewalks that will eventually be treated in our communities, the financial impact of selecting the right (or wrong) product is significant. The Research Office will continue to monitor the performance of several panels installed in municipal highway projects in the Concord area.



COATED STAINLESS STEEL

Several manufacturers are producing stainless steel panels that are painted in safety yellow and other available colors.



DURABILITY OF TRUNCATED DOME SYSTEMS

Project Partners

- NHDOT Bureau of Materials & Research
- NHDOT Bureau of Bridge Maintenance
- NHDOT Bureau of Mechanical Services
- City of Concord Administrative Services



The City of Concord plowed and treated the test section in conjunction with its regular municipal sidewalk maintenance. NHDOT Materials & Research Bureau documented the installation and evaluated the performance of the test sections.



CAST IRON PANELS

A natural-finish cast iron product is now recommended for NHDOT projects. The highway industry has a long history with the durability of cast iron products. That history, coupled with the lack of a surface coating to wear out, make this product a good candidate for success.



WHAT'S NEXT? Several new products appeared on the market in 2004. Detectable warning panels made of cast iron and stainless steel hold promise for long-term durability against snow plowing. These products are intended for installation in fresh concrete by merely pressing them into a newly finished concrete ramp. This constitutes a savings in labor costs over many other products.

Unfortunately, the third winter was not so forgiving. A 7-inch by 9-inch patch was torn from one of the Thin Panels at the end of the 2004-05 season. There was an immediate need to find a replacement for specification in NHDOT projects.

EARLY RECOMMENDATION Thin Pavers, manufactured by ADA Fabricators, Inc. of Billerica, MA showed the least wear and damage after 20 plow passes during the first winter. Only minor additional wear was noted after the second winter at the test site. The panels retained their original color.

Pressed Stone Blocks were also recommended for the 2003 construction season. The Pressed Stone Blocks were removed from the recommendation in 2004 due to continued progressive wear and color fade.

FOR MORE INFORMATION

Visit the following web sites:

- www.access-board.gov
- www.nh.gov/dot/materialsandresearch

Or contact:

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